



UNITED STATES PATENT AND TRADEMARK OFFICE

m-1

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,358	04/29/2005	Hiroshi Miyagi	A-494	7161
802	7590	11/03/2006	EXAMINER	
PATENTTM.US P. O. BOX 82788 PORTLAND, OR 97282-0788			CHOW, CHARLES CHIANG	
		ART UNIT	PAPER NUMBER	
		2618		

DATE MAILED: 11/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/533,358	MIYAGI ET AL.	
	Examiner Charles Chow	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 29 April 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-16 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 4/29/2005 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

Detailed Action**Title**

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The current title, "Receiver", is not descriptive for the key features of the invention, for a switch coupled to an antenna for routing the test signal generated by the crystal oscillator, for testing AM, FM, reception quality.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2, 7, 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Porambo et al. (US 5,280,638).

For claim 1, Porambo et al. [Porambo] discloses a receiver [Fig.3, aligning receiver with test signal to maximize sensitivity, abstract] comprising
a crystal oscillator [28, col. 3, line 51] for generating a signal required for reception operation of broadcast waves [generating fd broadcast signal for FM reception, Fig. 1 & col. 3, lines 4-5; crystal oscillator 28 for generating required alignment reference frequency for FM reception, col. 4, lines 5-17; using test signal fd for alignment, col. 3, lines 14-25],
a signal generation unit [crystal oscillator 28, switch 65, mixer 66, 43 & PLL24] for generating a test signal [fd] for an operation test by using an output signal of said crystal oscillator [generating fd broadcast signal for calibrating of the FM reception by mixing signal

from 28 at 66 with the local oscillator signal from 43 & PLL 24, col. 5, 32-42; col. 5, lines 5-19];

an input unit [switch 35] for inputting the test signal [fd] to an antenna input section [switch 35 for antenna 20] when the operation test is performed [performing alignment, testing, controlled by microcontroller 25, col. 5, lines 5-19]; and

a determining unit [microcontroller 25] for determining quality [received signal strength] of reception operation based on a measured signal generated when reception operation is performed for the test signal [25 monitoring the output of A/D 69 in order to maximize the signal strength, col. 6, lines 14-18; by repeated tuning, col. 6, lines 42-58].

For claim 2, Porambo discloses the receiver [Fig. 3], wherein said input unit is a switch [switch 35] provided between said signal generation unit [circuitry for generating fd in Fig. 3] and said antenna input section [input or antenna 20].

For claim 7, Porambo discloses the receiver [Fig. 3], comprising a switching control unit [microcomputer 25] for switching the reception operation of said broadcast waves [25 controls the switch 35 for broadcast reception, col. 5, line 5-19] and the determination operation by said determining unit using the measured signal [microcomputer 25 compares the signal strength, via A/D 69, for the determining operation for the maximum signal strength via the tuning voltage in the alignment process, col. 6, lines 24-58].

For claim 12, Porambo discloses the receiver [Fig. 3], wherein said measured signal is an intermediate frequency, IF, signal generated by mixing said test signal and a local oscillator signal [the measuring of signal strength of the intermediate frequency IF output of IF 41 by the A/D69, Fig. 3, col. 6, lines 12-19; the IF output is generated by mixing fd with fLO at mixer 40, col. 5, lines 32-42], wherein said determining unit [microcontroller 25]

detects a level of said intermediate frequency signal [col. 6, lines 12-19 & 25 compares the signal strength, for maximizing the signal strength, col. 6, lines 34-46].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 3-4, 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porambo in view of Churchill et al. (US 3,950,750)

For claim 3, Porambo teaches a receiver [Fig. 3] having a fixed frequency oscillator which is a crystal oscillator 28 [col. 3, lines 50-51], but fails to teach the fixed oscillator, is used for generating a reference signal inputted to a frequency synthesizer for generating a local oscillation signal.

Churchill et al. [Churchill] teaches the fixed oscillator, is used for generating a reference signal inputted to a frequency synthesizer for generating a local oscillation signal [the fixed 10 MHz clock 50, Fig. 2, generates reference signals f_{IF} from 58, f_D from 54, inputted to PLL 404/Fig. 4, as the frequency synthesizer, for generating test signal from 42, col. 3, line 59 to col. 4, line 8], for correcting the amplitude & phase error [abstract] via the timing from clock 50. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Porambo with Churchill's fixed 10 MHz clock signal for logic circuit A/D, in order to correct the amplitude & phase error, via the timing from the fixed clock signal 50.

For claim 4, Porambo discloses the receiver [Fig. 3] having a fixed frequency oscillator which is a crystal oscillator 28 [col. 3, lines 50-51], but fails to teach the fixed oscillator is used for generating a clock signal required for operating logic circuits.

Churchill et al. [Churchill] teaches the fixed oscillator is used for generating a clock signal required for operating logic circuits [the 10 MHZ fixed frequency clock oscillator 50, Fig. 2 in block 24 for generating CP/2 to logic of A/D 36₁, 36₂ ; CP/2, TEST-top-bar, to logic 100/38 in Fig. 5/Fig. 3, col. 3, line 54-59; 50 is also used for generating test signal test generator 42, Fig. 1; to send test signal to receiver via rf switch 44 in & col. 3, line 38 to col. 4, line 8; 50], using the same reasoning in claim 3 above for combining Churchill with Porambo.

For claims 9, 10, Porambo discloses the receiver [Fig. 3], the wherein said signal generation unit is a PLL circuit [24] and a oscillator [crystal oscillator 28 with fixed output frequency], frequency synthesizer [PLL 24] for generating said test signal [fd] having a frequency included in a reception band of the broadcast waves [the broadcast wave signal including fd in Fig. 1, col. 3, lines 4-5], but fails to teach the by using the output signal of said crystal oscillator as a reference signal.

Churchill teaches the generating of test signal by using the output signal of said fixed frequency oscillator as a reference signal, for the PLL, frequency synthesizer [the clock oscillator 50 in Fig. 2 generates reference signal f_{IF} of the PLL 404 in Fig. 4, col. 3, lines 38-68 & col. 5, lines 29-61], for correcting the amplitude & phase error [abstract] via the timing from clock 50. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Porambo with Churchill's fixed 10 MHz clock signal for logic circuit A/D, in order to correct the amplitude & phase error, via the timing from the fixed clock signal 50.

For claim 10, Porambo discloses the receiver [Fig. 3], wherein said signal generation unit is a frequency synthesizer for generating said test signal having a frequency included in a reception band of the broadcast waves by using the output signal of said crystal oscillator as a reference signal.

4. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porambo in view of Argo et al. (US 4,764,978).

For claim 5, Porambo discloses the receiver [Fig. 3], comprising an AM circuit [circuit path for AM demodulation 31, Fig. 3] for performing reception operation for an AM modulation wave signal inputted to said antenna input section [performing AM reception via antenna 20, col. 3, lines 36-56], but fails to teach the dividing the output of said crystal oscillator, for a frequency in AM band.

Argo et al. [Argo] teaches the wherein a frequency of a signal obtained by dividing the output signal of said crystal oscillator is included in a frequency band of said AM modulation wave signal [crystal oscillator 110 in Fig. 2, is divided by dividers 130-150, in block 100, for generating AM modulated broadcast wave signal, col. 4, lines 49-64; the output band pass filer 300 for AM frequency band 0.55-16 MHz in Fig. 2], for generating AM modulated broadcast signal. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Porambo with Argo's AM broadcast signal generating by dividing the output of a crystal oscillator, in order to conveniently, with same timing, for generating the AM broadcast signal by using the same crystal oscillator.

For claim 6, Porambo discloses the receiver [Fig. 3], comprising an FM circuit [circuit associated with the FM demodulation 42, Fig. 3] for performing reception operation for an FM modulation wave signal inputted to said antenna input section [FM reception of the

Art Unit: 2618

signal from antenna 20, col. 3, lines 17-32], but fails to teach the multiplying the output of said crystal oscillator, for a frequency in FM band.

Argo teaches the wherein a frequency of a signal obtained by multiplying the output signal of said crystal oscillator is included in a frequency band of said FM modulation wave signal [430 multiplying the signal from crystal oscillator 410 for generating FM frequency in the FM modulation band having 88-108 MHz from output filter 540, Fig. 2, col. 6, lines 5-16 & col. 6, lines 40-45], using the reasoning in claim 5 above for combining Argo to Porambo.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porambo in view of Counselman, III et al. (US 2002/0126,046 A1).

For claim 8, Porambo discloses the receiver [Fig. 3], but fails to teach the frequency dividing of the output of the crystal oscillator for generating said test signal.

Counselman III et al. [Counselman] teaches the wherein said signal generation unit is a frequency divider for generating said test signal having a frequency included in a reception band of the broadcast waves by dividing the output signal of said crystal oscillator [the calibrating of a receiver, the test signal generator 63 divides the output of crystal oscillator 80 with a value of N in divider 83, Fig. 2, paragraph 0084-0087], in order to calibrate the receiver with a frequency dividing of the output of the crystal oscillator signal. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Porambo with Counselman's frequency dividing of the output of the crystal oscillator, in order to generate test signal for calibrate the receiver.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porambo in view of Argo-'978.

For claim 11, Porambo discloses the receiver [Fig. 3], but fails to teach the multiplier associated with the said crystal oscillator.

Argo teaches the wherein said signal generation unit [400] is a multiplier for generating said test signal having a frequency including in a reception band of the broadcast wave by multiplying the output signal of said crystal oscillator [multiplier 430 multiplying the signal from crystal oscillator 410 for generating FM frequency in the FM modulation band having 88-108 MHz from output filter 540, Fig. 2, col. 6, lines 5-16 & col. 6, lines 40-45], using the reasoning in claim 5 above for combining Argo to Porambo.

7. Claims 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porambo in view of Uda (US 5,940,744)

For claim 13, Porambo discloses the receiver [Fig. 3], wherein said determining unit detects a level of the signal subjected to said detection processing [col. 6, lines 12-19 & 25 compares the signal strength, for maximizing the signal strength, col. 6, lines 34-46], but fails to teach the said measured signal is after a detection processing applied to the intermediate frequency IF signal.

Uda teaches the wherein said measured signal is a signal after a detection processing is applied to the intermediate frequency signal [the detecting, measuring, of the signal level at 112 which is after the demodulator 102, as the detection processing applied to the IF signal, col. 3, lines 18-30, Fig. 1], for correcting the error of the detected signal level via error signal from comparator 113. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Porambo with Uda's output detection 112, such that the error in the signal level could be corrected.

Art Unit: 2618

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porambo in view of Schetelig et al. (US 6,895,229 B2).

For claim 14, Porambo discloses the receiver [Fig. 3], but fails to teach the further comprising a notifying unit.

Schetelig et al. [Schetelig] teaches a notifying unit for notifying quality of reception operation based on the determination result of said determining unit [the controller 12, as the determining unit, for providing the test result indicating serviceability on a display device, col. 8, lines 1-16], for communicating the test result to user. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Porambo with Schetelig's displaying of the test result, such the user could see the test result.

9. Claim 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Porambo in view of Schetelig, as applied to claim 14 above, and further in view of Isomichi et al. (US 2002/0081,999 A1).

For claim 15, Porambo discloses the receiver [Fig. 3]. Schetelig teaches the displaying device for displaying test result [col. 8, lines 10-16]. Poramble & Schetelig fail to teach the displaying contents of the broadcast waves in reception is used as said notifying unit.

Isomichi et al. [Isomichi] teaches the wherein a display unit for displaying contents of the broadcast waves in reception is used as said notifying unit [the pager receiver receives radio wave 2, having message content, Fig. 1-3B, & displaying received paging, broadcast, message content on a LCD display 6, paragraph 0050], in order to notify user of the paging, broadcast, message via a display. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Porambo, Schetelig with

Isomichi's displaying the content of the paging, broadcast, message, such that user could see the message via a display.

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porambo in view of Schetelig, as applied to claim 14 above, and further in view of Korycan (US 5,950,139).

For claim 16, Porambo discloses the receiver [Fig. 3]. Schetelig teaches the displaying device for displaying test result [col. 8, lines 10-16]. Poramble & Schetelig fail to teach the wherein said notifying unit is an illumination unit for notifying quality of reception operation depending on a lighting state.

Korycan teaches the wherein said notifying unit is an illumination unit for notifying quality of reception operation depending on a lighting state [the LED 110 for notifying user of the signal quality, Fig. 1, abstract; Fig. 2 signal quality indicator 360, as the notifying, illumination, unit, for notifying quality of reception with the lighting state, col. 2, lines 15-55], such that user could immediately, conveniently, know the received signal quality via the LED indicator. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Porambo, Schetelig with Korycan's signal quality indicator, such that user could immediately, conveniently, know the received signal quality via the LED indicator.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A. US 5,963,600, Rausch et al. teaches the reference oscillator 61 for providing reference signal to PLL 63 for calibrate the radio receiver [abstract, Fig. 2].

Art Unit: 2618

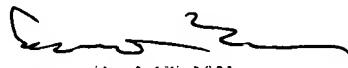
B. 2005/0221,774 A1, Ceresoli et al. teaches the generating of AM, FM, modulated signal in the broadcast frequency band from blocks 708, 712 [Fig. 7, paragraph 0074-0077].

C. US 2006/0068,739 A1, having later effective filing date of 7/13/2005, Maeda et al. teaches the CSG-M 24 for generating calibrating signal f_{RF} to antenna switch 2, Fig. 1-2, paragraph 0042-0045].

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Chow whose telephone number is (571) 272-7889. The examiner can normally be reached on 8:00am-5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow C.C.

October 20, 2006.



CHARLES CHOW
PATENT EXAMINER
TELECOMMUNICATIONS
TECHNOLOGY CENTER 2830